

A NEW SUBGENUS OF *ELEODES*,
WITH THREE NEW CAVE-INHABITING SPECIES
(COLEOPTERA: TENEBRIONIDAE)

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ABSTRACT

Caverneleodes, a new subgenus of *Eleodes* is described to include 3 cave-inhabiting species: *E. easterlai* and *E. labialis* from Texas and *E. leptoscelis* from Arizona, all of which are described as new.

A number of species of Tenebrionidae, including many members of the genus *Eleodes*, are found in caves, but few are confined to such a habitat. This paper deals with 3 very similar species which I consider sufficiently distinct to warrant subgeneric rank; 2 of the 3 were taken in caves and the third might have come from a cave also. All have structural modifications which I speculate are associated with a cavernicolous existence.

Eleodes subgenus *Caverneleodes* Triplehorn, **New Subgenus**

Form elongate, slender, flattened dorsally; eyes reduced; antennae extremely long (terminal 4 to 5 segments extending beyond pronotal base) and slender; lateral lobes of mentum fully exposed; legs long and slender, profemora mutic in both sexes; protibial spurs similar in the sexes, protarsus with plantar grooves not interrupted. Primary female genital characters indicate relationship with subgenus *Metablapylis*.

In general appearance, external morphological characters, and female genitalia, the affinities of this subgenus clearly lie with the subgenus *Metablapylis*. Species of *Caverneleodes* may be distinguished from those of *Metablapylis* by the unusually long, slender antennae and the reduced eyes. The species of *Caverneleodes* have the longest antennae, the most slender legs, and the most reduced eyes of any species of *Eleodes* known to me. Type species: *Eleodes easterlai* Triplehorn.

Eleodes (Caverneleodes) easterlai Triplehorn, **New Species**

DESCRIPTION: holotype, female: elongate, moderately slender, flattened dorsally, black, subopaque, minutely setose. Head 0.85 as long as broad, clypeal suture fine but evident, epistomal margin truncate; surface finely but deeply, sparsely punctured, no conspicuous setae except immediately behind eyes; eyes unusually small, narrow, and distinctly flattened, separated dorsally by a distance subequal to 5.5 times the diameter of 1 eye as viewed from above; antennae (Fig. 2) extremely long and slender, terminal 4 segments extending beyond base of pronotum, segments 2 to 7 subcylindrical, segment 3 is 6 times as long as broad, segments 4 to 7 are 3 times as long as broad, segment 8 shorter and somewhat flattened, segments 9-11 short, robust and flattened; lateral lobes of mentum fully exposed and conspicuous; median

lobe twice as broad as long, finely sculptured and with a conspicuous median longitudinal carina; gular area coarsely and densely granulate except for the triangular median portion which is longitudinally wrinkled. Pronotum 0.8 as long as broad, broadest in anterior third, conspicuously narrowed posteriorly, lateral margins strongly arcuate from apex to about basal fourth then briefly sinuate to base; marginal bead strong and visible from above throughout its length and continued around apical angles for about 0.33 the length of apical margin, barely traceable medially; anterior margin broadly and shallowly emarginate, the angles right; basal margin feebly rounded, the angles abruptly obtuse; surface finely and sparsely punctured on disc, punctures gradually smaller laterally, becoming scarcely evident on lateral 0.25. Scutellum smooth, impunctate. Elytra elongate-oval, somewhat flattened medially, broadest behind middle, sides evenly arcuate, slightly divergent from base, rounding more abruptly in region of apical declivity; base shallowly emarginate and equal in width to pronotal base; humeri obtuse with marginal bead conspicuous and visible from above along basal 0.1 of elytra; surface minutely alutaceous, striae conspicuous but not impressed, consisting of small, muricate punctures, each of which bears a short, porrect, golden seta; intervals flat, each with a single row of seta-bearing, muricate punctures which are slightly smaller and more widely spaced than those of striae. Epipleura very broad basally, gradually tapering to apex, impunctate. Legs long and slender, femora finely and sparsely punctured; metatibiae extending beyond suture separating terminal 2 abdominal sterna; profemora unarmed, protibial spurs small, subequal in size; tarsal plantar grooves without fine setae; tibiae all strongly spiculiferous. Ventral surface alutaceous, that of prothorax impunctate; prosternum finely and irregularly granulate, prosternal process expanded between coxae, deeply grooved on each side with apex acute and reflexed; mesosternum moderately coarsely granulate-setose, without pronounced groove receiving prosternal process; metasternum impunctate but with scattered, long, fine, golden setae; basal 4 abdominal sterna minutely and sparsely punctate, each puncture bearing a fine but conspicuous, recumbent golden seta, terminal sternum more coarsely and densely punctured with longer, more porrect setae. Genital segment elongate-triangular in outline, ovipositor valve (Fig. 3) with dorsal plate elongate, convex, glabrous, external edge converging apically, angle not evident; appendage small, mammiliform, with only 2 or 3 setae. Length: 17.3 mm; width: 6.9 mm.

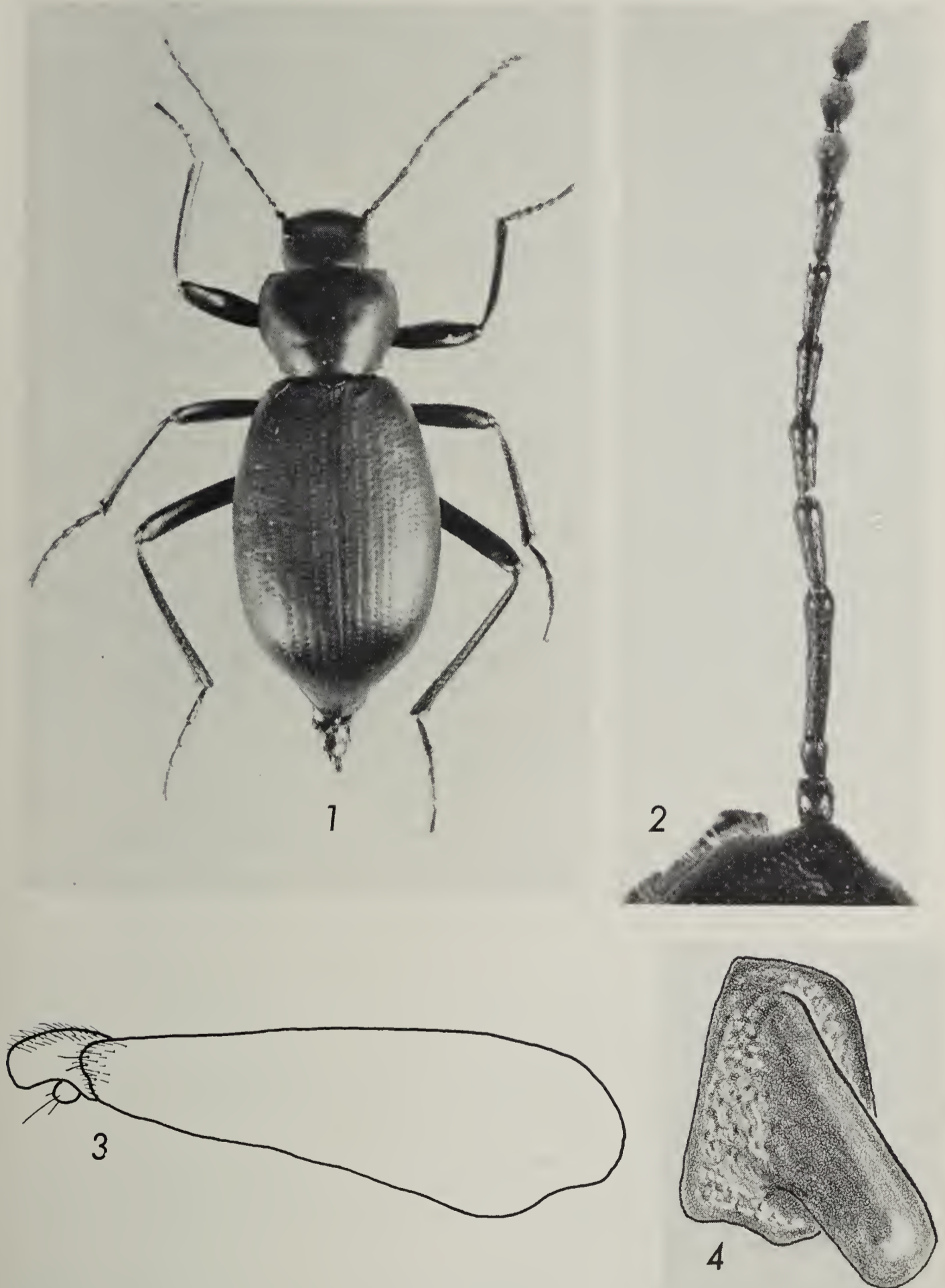
Allotype, male: similar to female but smaller, more slender. Length: 14.3 mm; width: 5.6 mm.

Range of size in type series: males: length: 13.2-17.3 mm; width: 5.1-6.3 mm; females: length: 15.2-18.5 mm; width: 6.3-7.6 mm.

TYPES: holotype, allotype, and 22 paratypes (12 females, 10 males): TEXAS: Big Bend National Park, Brewster County, Emory Peak (7400 feet), 18-VII-1972, C. A., W. E., and B. W. Triplehorn, D. A., and D. J. Easterla; 3 female paratypes: same location, 27-VII-1971, D. A. Easterla. Holotype (USNM #73088), allotype, and paratypes in United States National Museum; paratypes in The Ohio State University Collection of Insects and Spiders.

The entire type series came from a 3-level breakdown cave inhabited by the only known United States colony of the Mexican long-tongued bat, *Leptonycteris nivalis longala* Stains. These bats feed only upon pollen and

nectar, and their guano deposits are very different from those of insectivorous species. Specimens of *E. easterlai* were found on the first and second levels of the cave and 1 was found at the very entrance. Two specimens of *E. knullorum* Triplehorn were also taken in the cave in company with *easterlai*.



Eleodes easterlai: 1) female paratype; 2) right antenna; 3) dorsal view of right ovipositor valve. *E. labialis* 4) mentum, showing anteriorly-directed process.

I take pleasure in naming this species in honor of Dr. David A. Easterla who sent me the first specimens, and who graciously led the successful expedition to obtain additional material.

Eleodes (Caverneleodes) labialis Triplehorn, **New Species**

This species is based upon 2 specimens which are superficially very similar to *E. easterlai* in general appearance. It differs from *easterlai* primarily in the prominent finger-like structure of the mentum (Fig. 4). In all of the available specimens of *easterlai*, the mentum has a similar structure, but it is not developed to the remarkable degree seen in the present species. I am unaware of such a modification in any other species of *Eleodes*. Other differences, which appear distinct and constant enough to separate the 2 species, are relative in nature but are worthy of mention; each character which follows is based upon a comparison with *easterlai*, described in detail above: the sides of the head above the antennal insertions are more convex and the clypeus is more abruptly swollen, creating a more well-defined transverse concavity in the fronto-clypeal area; the head is less densely and more finely punctate, with coarse punctures confined to the epistomal margin; the pronotal punctures are finer but more numerous and closer together; the setae of the abdominal sterna are not as long nor as dense, in fact, they are scarcely evident. Measurements: (Holotype): length: 15.7 mm; width: 5.7 mm; (Paratype): length: 14.4 mm; width: 5.4 mm.

TYPES: holotype and paratype (both males): TEXAS: Big Bend National Park, Brewster County, Santa Elena Canyon, 3-IX-1968, J. A. Brubaker, and F. J. Moore. Holotype (USNM #73089) in United States National Museum; paratype in The Ohio State University Collection of Insects and Spiders.

F. J. Moore, 1 of the collectors of this species, informed me that the 2 specimens were taken at night at the entrance of deep rock fissures in the canyon walls above Terlingua Creek near its junction with the Rio Grande River. Such fissures would certainly approximate cave conditions and they may be indicative of more extensive caverns in this area.

Eleodes (Caverneleodes) leptoscelis Triplehorn, **New Species**

This species also strongly resembles *E. easterlai* and may be characterized best by comparison with that species. In *leptoscelis* the head is not at all excavate in the fronto-clypeal area, the clypeus scarcely defined except laterally, the epistomal margin is concavely arcuate rather than truncate, and the surface is densely but minutely punctate throughout; pronotum much less transverse (length about 0.85 times width; 0.80 or less in *easterlai*), more cylindrical, has an extremely fine marginal bead, the median portion not visible from above (completely obliterated medially in some specimens), and the surface minutely and uniformly densely punctate; elytra as in *easterlai*; legs extremely long and slender, hind femora at least 8 times as long as wide (about 6.5 times as long as wide in *easterlai*); abdominal setae dense but short and inconspicuous. Measurements: length: 12.9-14.9 mm; width: 5.0-6.0 mm.

TYPES: holotype (female) and 2 paratypes: ARIZONA: Coconino County, Cave of Domes, 16-X-1953; 1 paratype, same data except 14-X-1954; 2 paratypes, Coconino County, Cave 68-Olje, 14-X-1954; 1 paratype, Coconino County, Tse-an-cho, 7-XI-1953. Holotype (USNM #73090) and paratypes in

United States National Museum; paratypes in The Ohio State University Collection of Insects and Spiders. The following information on cave locations was supplied by Paul S. Bartholomew in 1957: Cave of Domes and Tse-an-Cho are both caves on Horseshoe Mesa, about 12 miles east of South Village, which is on the south rim of the Grand Canyon; Cave 68-Olje (also called Tse-an-Olje) is a cave east of South Village; the 3 caves are at approximately 4500 feet elevation (T. J. Spilman, in litt.).

The female genitalia of *leptoscelis* are, to me, indistinguishable from those of *easterlai*; the female of *labialis* is unknown.

Key to Species of *Eleodes* (*Caverneleodes*)

1. Mentum with median longitudinal carina rising abruptly to form a conspicuous blunt finger-like process (Fig. 4).... *labialis* n.sp.
- 1'. Mentum with median longitudinal carina only slightly raised anteriorly and with apex acute 2
2. Pronotal length less than 0.8 of width; hind femora less than 7 times as long as wide; pronotum with lateral marginal bead strong *easterlai* n.sp.
- 2'. Pronotal length at least 0.85 of width; hind femora at least 8 times as long as wide; pronotum with lateral marginal bead weakly developed, scarcely visible from above..... *leptoscelis* n.sp.

I wish to thank: Dr. David A. Easterla for his help in obtaining the series of *Eleodes easterlai*; Mr. T. J. Spilman, United States Department of Agriculture, for allowing me to study the specimens under his care; Mr. Spilman and Dr. Donald J. Borror for helpful suggestions in preparation of this paper; Mr. Glen Berkey, Ohio Agricultural Research and Development Center, who took the photographs.

A NOTE ON THE FECUNDITY OF *PRIONUS IMBRICORNIS* (LINN) (COLEOPTERA: CERAMBYCIDAE).

A gravid female, with abdomen partially severed by a lawn mower, was obtained 25-VII-1974, Montgomery County, Virginia. The eggs were still intact, except a few that were being removed by ants. These eggs, after being laid, would most likely suffer from predation by ants and other organisms. Eggs, totaling 254, ranged from 3.6 mm to 4.0 mm long.—**Anthony J. Mullins**, Biology Department, Christiansburg High School, Christiansburg, Virginia 24073.